

## Abstract

Methods and apparatus for performing channel estimate updates in frequency division multiplexed, e.g., (OFDM), systems are described. After generation of initial channel estimates from received pilots, channel estimates corresponding to individual tones are updated using any one of a plurality of update techniques including, e.g., a constant modulus based method and a reduced constellation decision directed update method. The channel estimate update technique to be used with for an individual tone is selected based on a comparison of a signal noise measurement to one or more thresholds. The channel estimate update technique applied to different tones of the OFDM signal at the same time may vary. Over time, as the level of noise is reduced, the channel estimate update technique will switch from an interpolated pilot method, to a constant modulus algorithm based method, to a reduced constellation decision directed method, to a full constellation decision directed update method.